

*Circuit Board Assembly with a Combination Thermal, Shock, Vibration,
and/or Electromagnetic Compatibility Cover*

1. A circuit board assembly comprising

a circuit board comprising a substrate and one or more circuit components thereon,

a cover coupled to the circuit board,

the cover comprising

a planar member and

one or more structural elements coupled to the planar member that regulate any
of shock and vibration in any of the cover and the circuit board.
2. The circuit board assembly of claim 1, wherein one or more of the structural elements
are formed integrally with the planar member.
3. The circuit board assembly of claim 2, wherein the one or more of the structural ele-
ments disposed on a surface of the planar member.
4. The circuit board assembly of claim 1, wherein one or more of the structural elements
comprise an elongate member.
5. The circuit board assembly of claim 5, wherein one or more of the structural elements
comprise a rod-like member.
6. The circuit board assembly of claim 5, wherein one or more of the structural elements
are disposed at one or more ends of the planar member.
7. The circuit board assembly of claim 5, wherein one or more of the structural elements
comprise a cross-shaped member.
8. The circuit board assembly of claim 1, wherein one or more of the structural elements
comprise a heat-dissipative element.

9. The circuit board assembly of claim 1, wherein one or more of the structural elements are arranged to control electromagnetic emissions.
10. The circuit board assembly of claim 7, wherein one or more of the heat dissipative elements are mounted by one or more springs or other resilient elements (collectively, "springs") to the planar member and in thermal contact with one or more of the circuit components.
11. A cover for use with a circuit board, the cover comprising

a planar member and

one or more structural elements coupled to the elongate member that regulate shock and vibration in any of the cover and the circuit board.
12. The cover of claim 11, wherein one or more of the structural members comprise an elongate member, a rod-like member, a cross-shaped member and heat-dissipative element.
13. The cover of claim 12, wherein the structural members are disposed on the surface of the planar member.
14. The cover of claim 12, wherein one or more of the structural members are disposed at one or more ends of the planar member.
15. The cover of claim 12, wherein the cover is adapted to be removably affixed to the circuit board.
16. The cover of claim 12, wherein the planar member is thermally conductive.
17. The cover of claim 12, wherein the planar member comprises a cold plate.
18. The circuit board assembly of claim 11, wherein one or more of the structural elements are arranged to control electromagnetic emissions.
19. A circuit board assembly with thermal, shock, vibration, and/or electromagnetic compatibility control, comprising

a circuit board comprising a substrate and one or more circuit components thereon,

a cover coupled to the circuit board,

the cover comprising

a heat conductive planar member,

one or more a heat-dissipative elements coupled to the planar member, and

one or more elongate members disposed on a surface of the planar member.

20. The circuit board assembly of claim 19, wherein one or more of the heat dissipative elements are mounted by one or more springs or other resilient elements (collectively, “springs”) to the planar member and in thermal contact with one or more of the circuit components.
21. The circuit board assembly of claim 19, wherein one or more of the elongate members are disposed at one or more ends of the planar member.
22. The circuit board assembly of claim 21, wherein one or more of the structural elements are arranged to control electromagnetic emissions.